



# Cavity Data

*Claus H. Rode  
JLab Senior Team Leader*

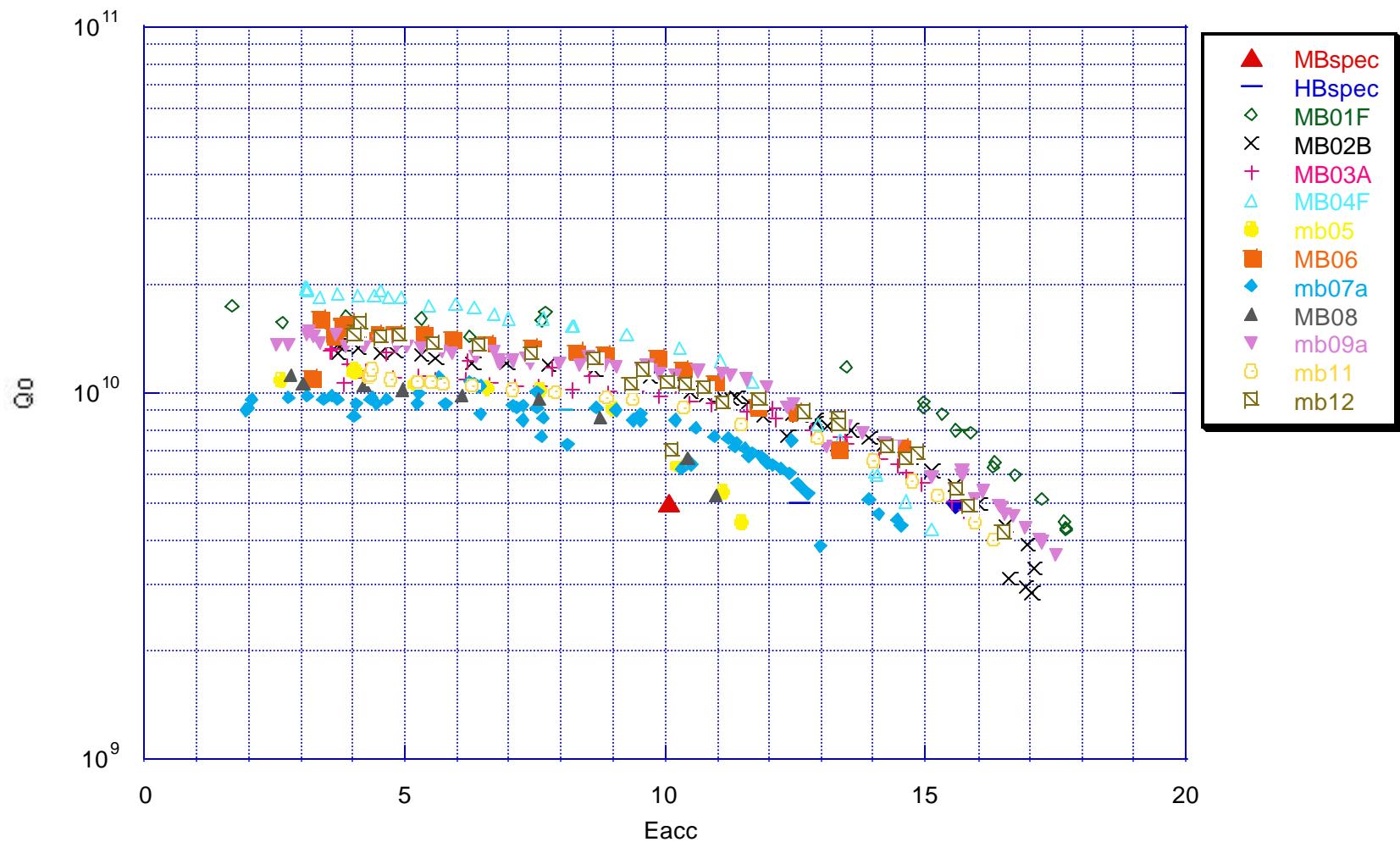
April 8, 2003

---

**SNS Linac**



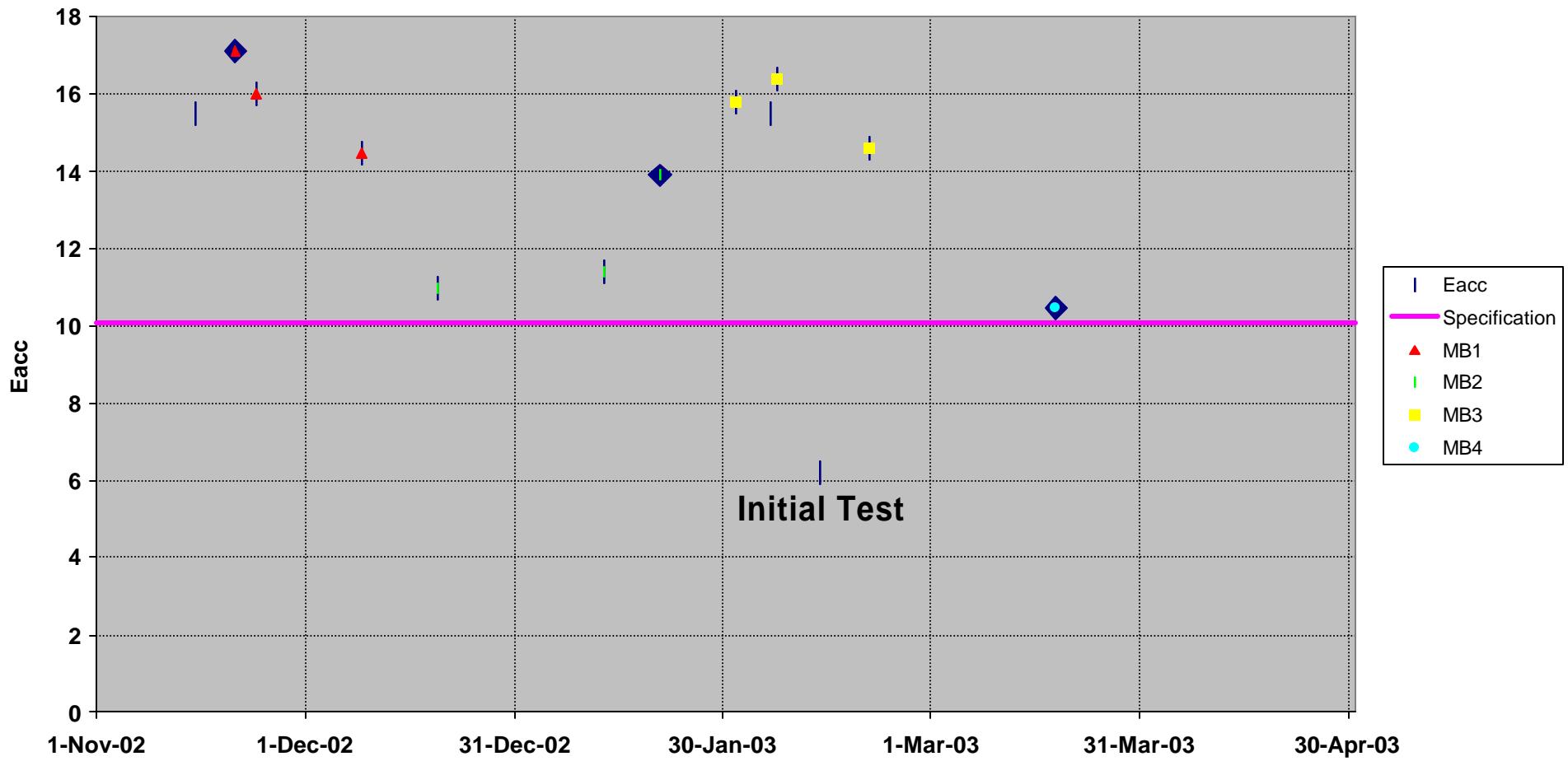
# MB VTA Cavity Performance Data



April 8, 2003

# SNS Vertical Dewar Testing

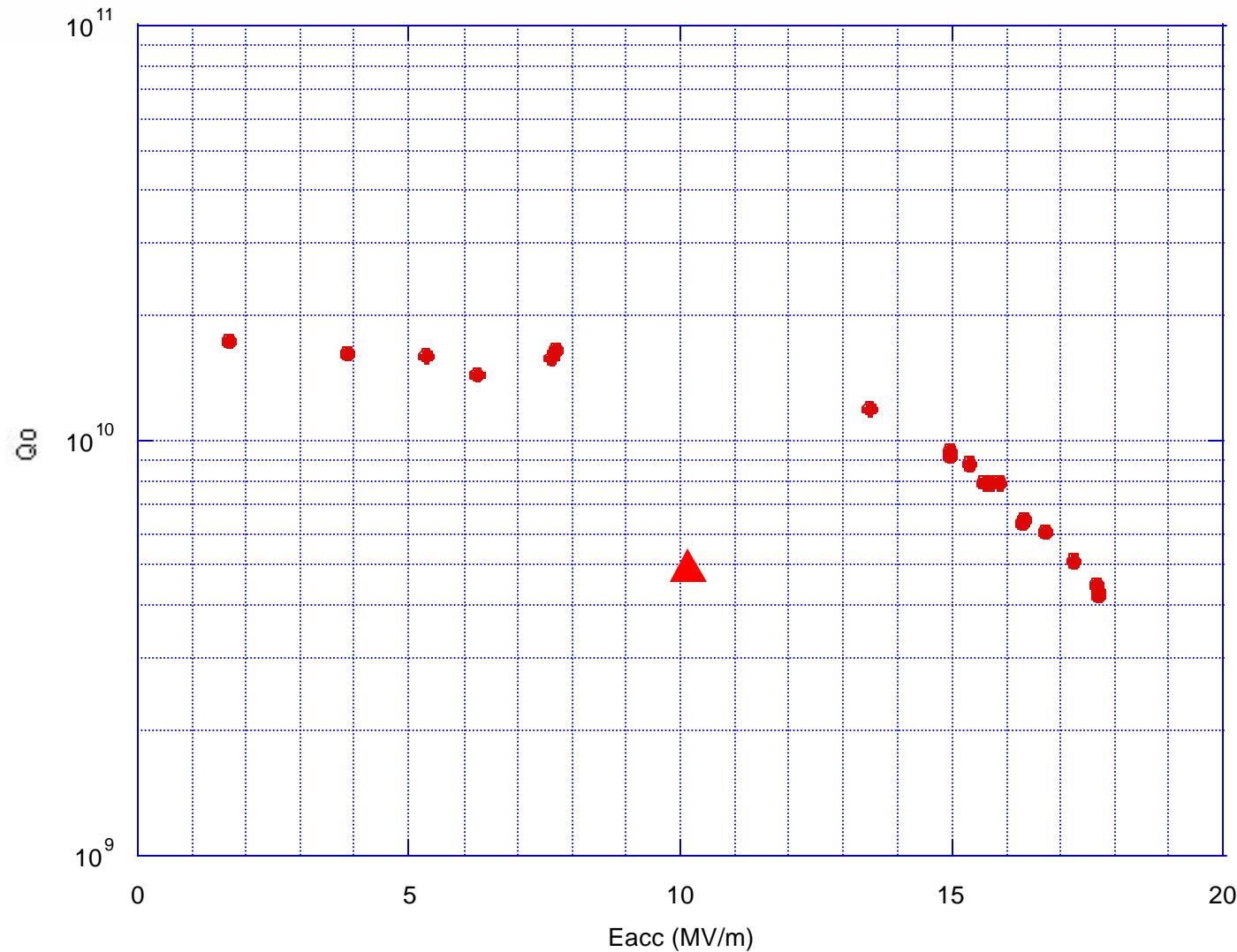
$E_{acc}$  @  $Q_o=5\cdot 10^9$



April 8, 2003

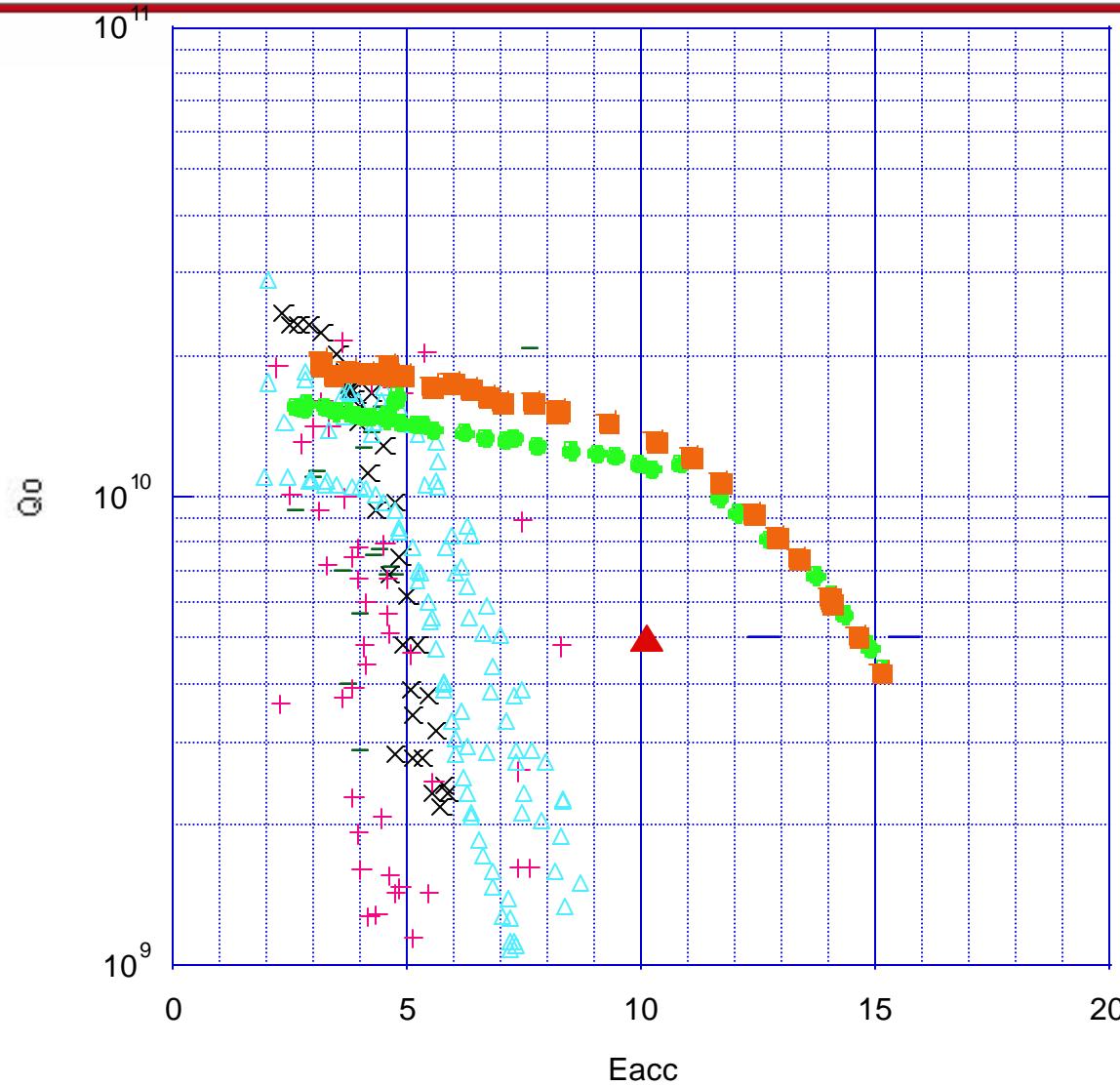
SNS Linac

# MB01F With Helium Vessel—Final Run



April 8, 2003

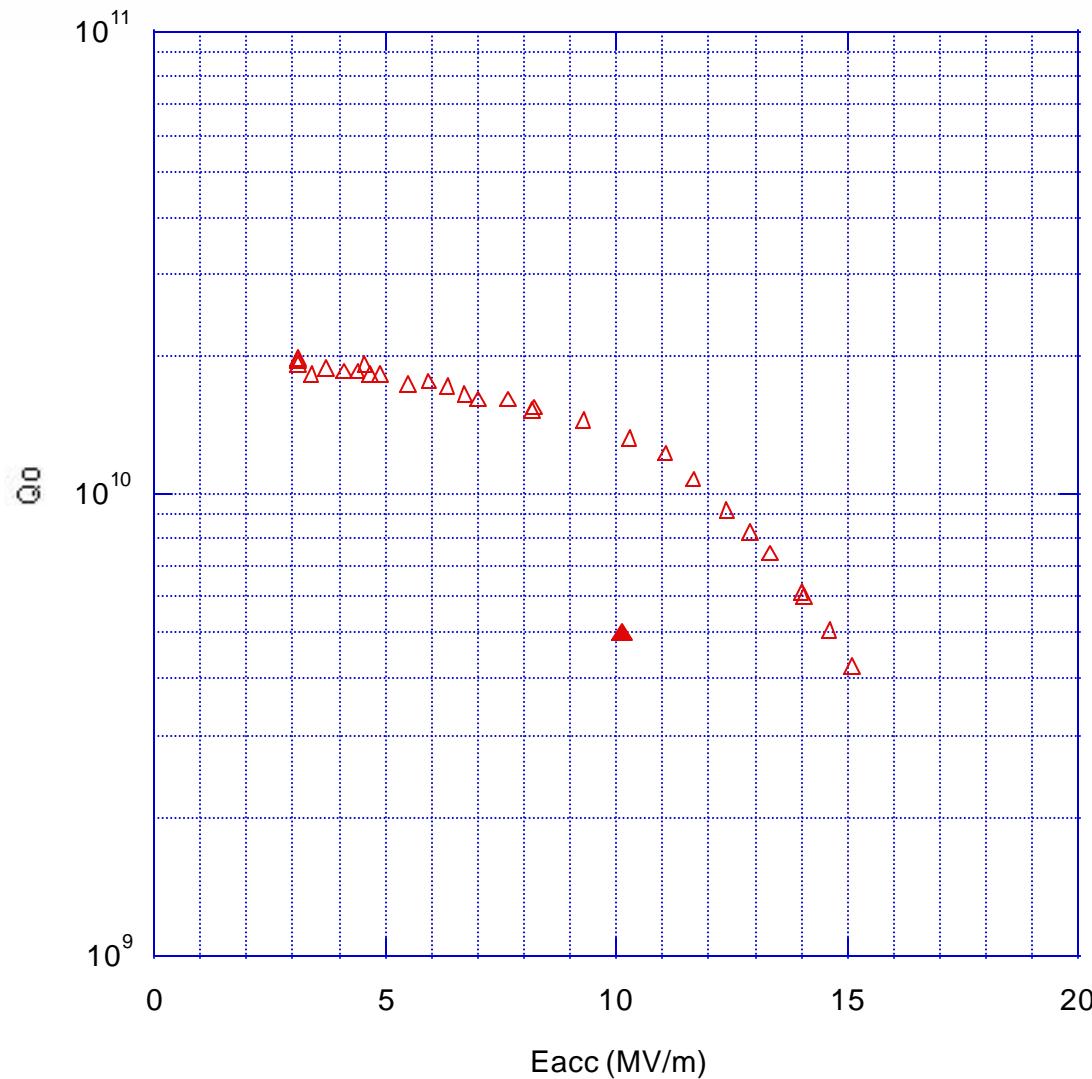
# VTA Tests of MB04



- MB04 50  $\mu$ m BCP, RF Cable Failed
- MB04A&B, Field Emission
- MB04C +20  $\mu$ m BCP, Field Emission
- MB04E&F +20  $\mu$ m BCP, No Field Emission

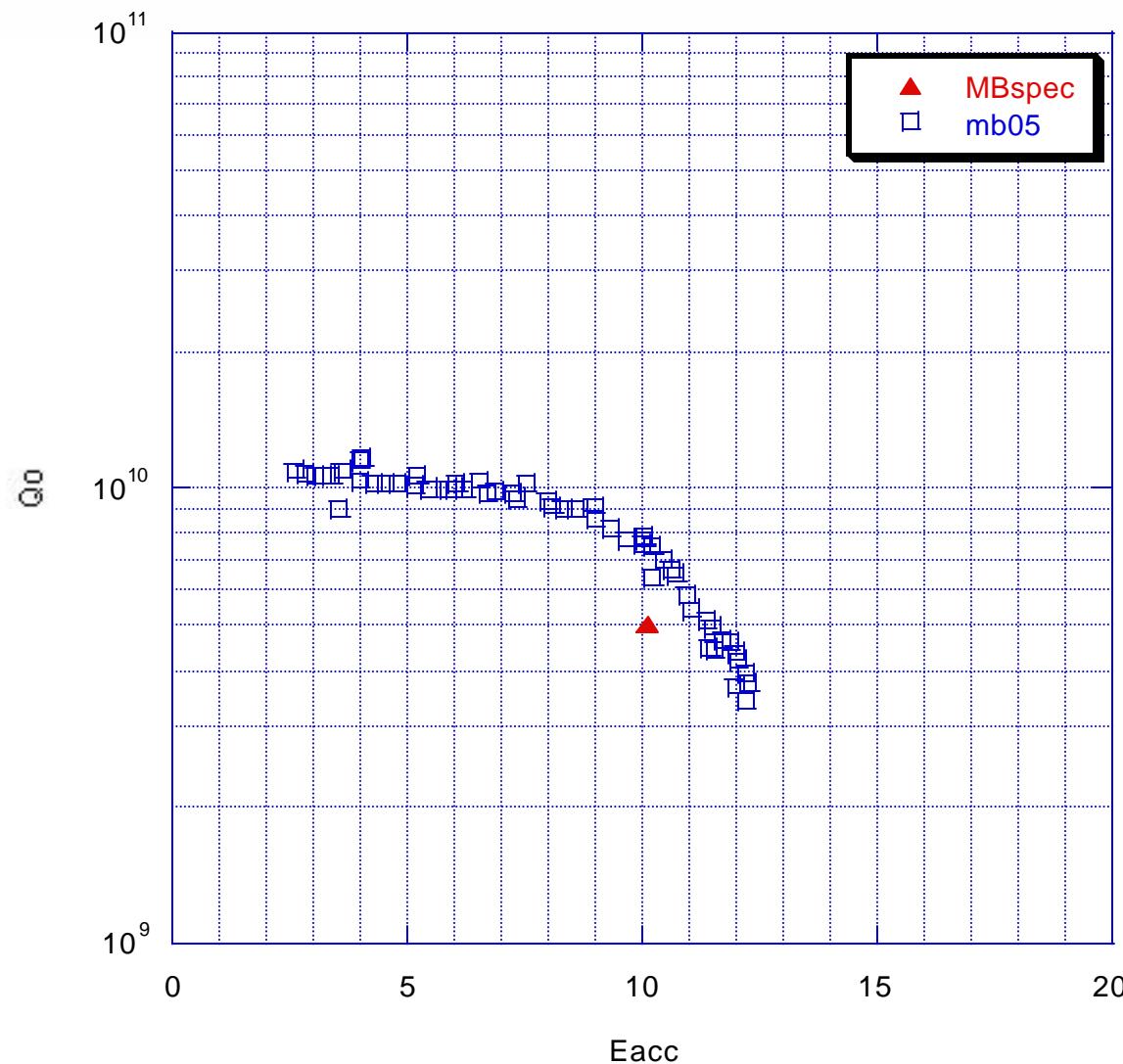
April 8, 2003

# MB04F 2/20/03 Limit Power Final Run



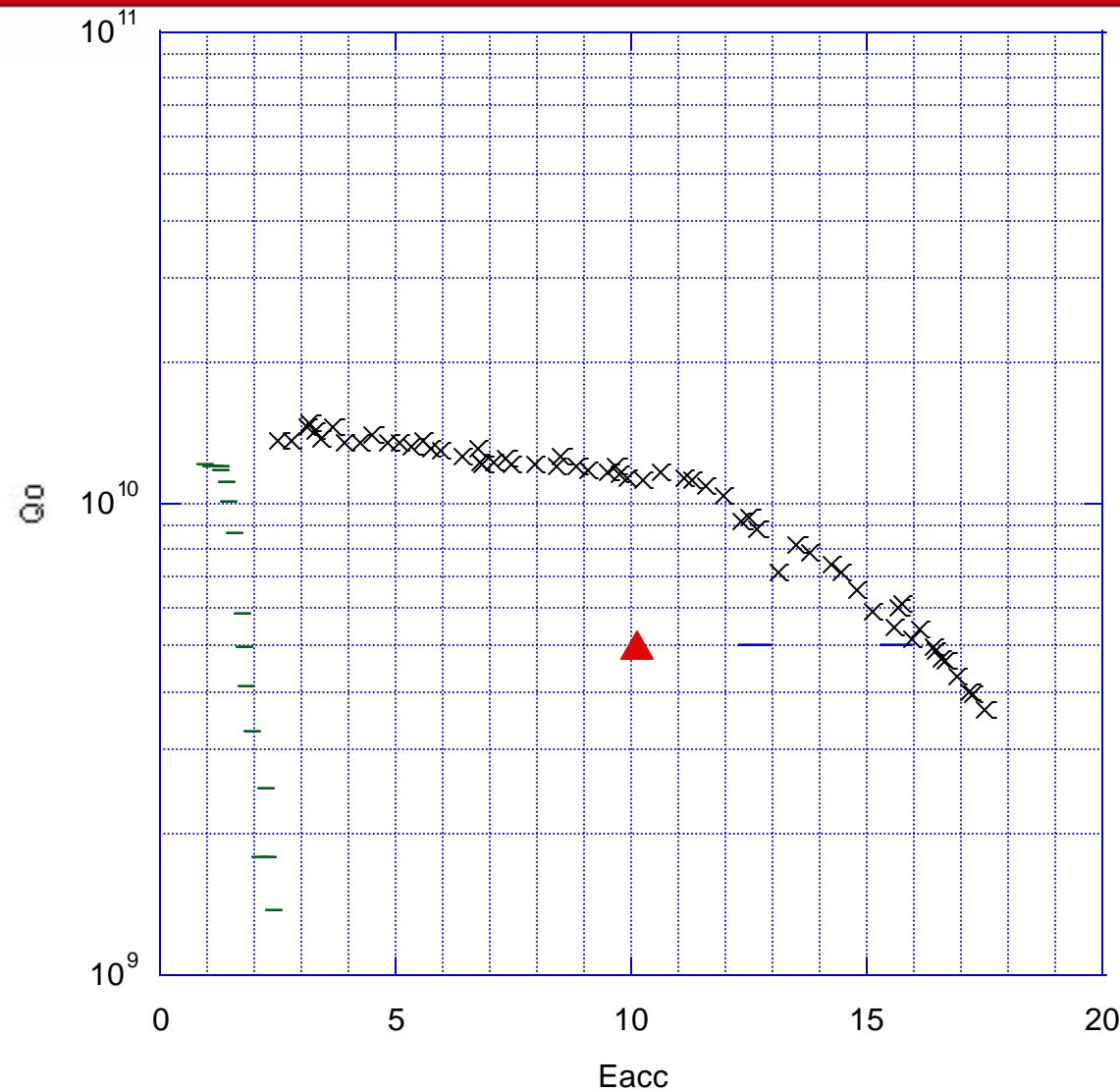
April 8, 2003

# MB05



April 8, 2003

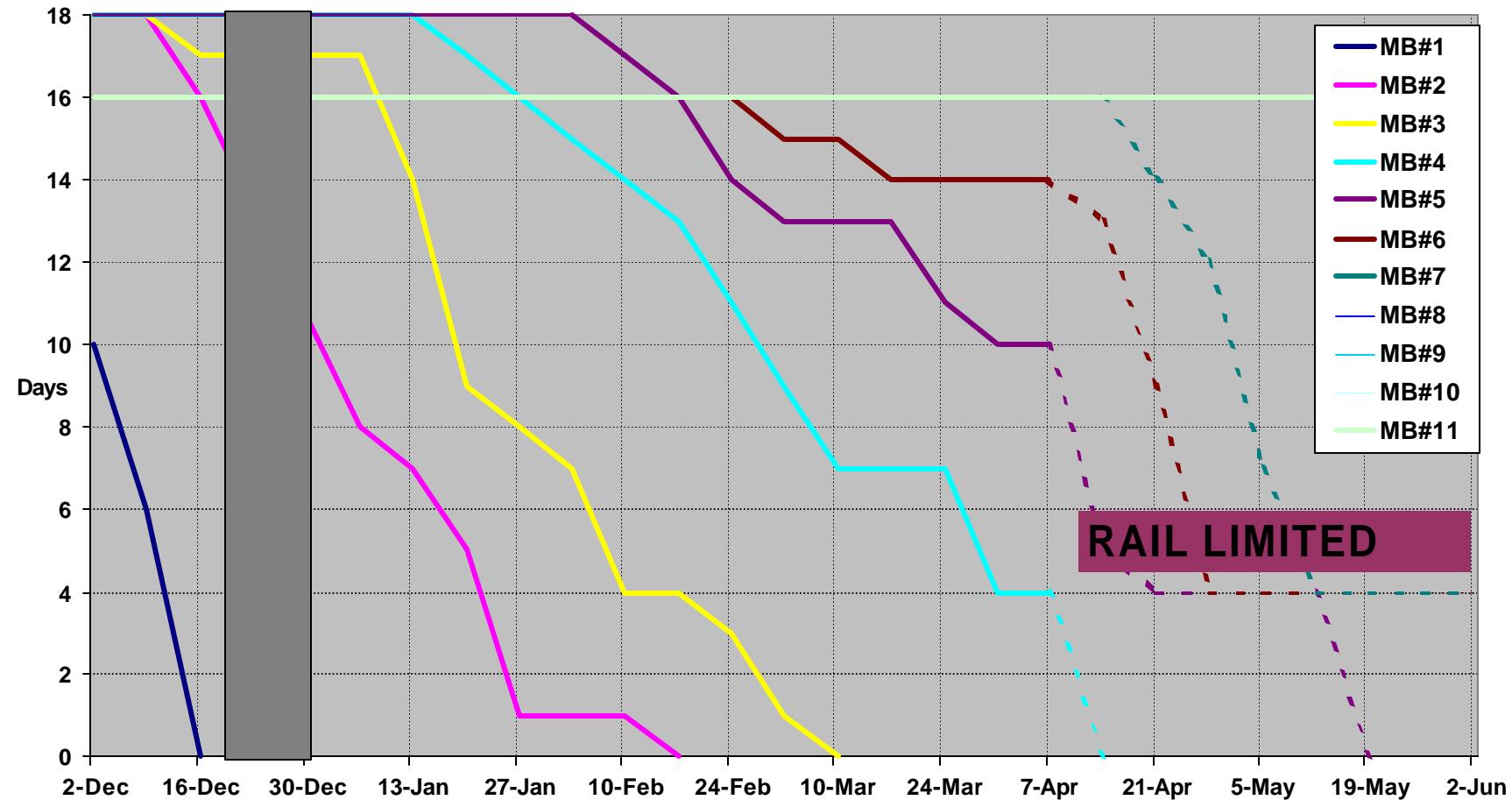
# VTA Tests of MB09



Passed after a second  
50  $\mu\text{m}$  BCP

April 8, 2003

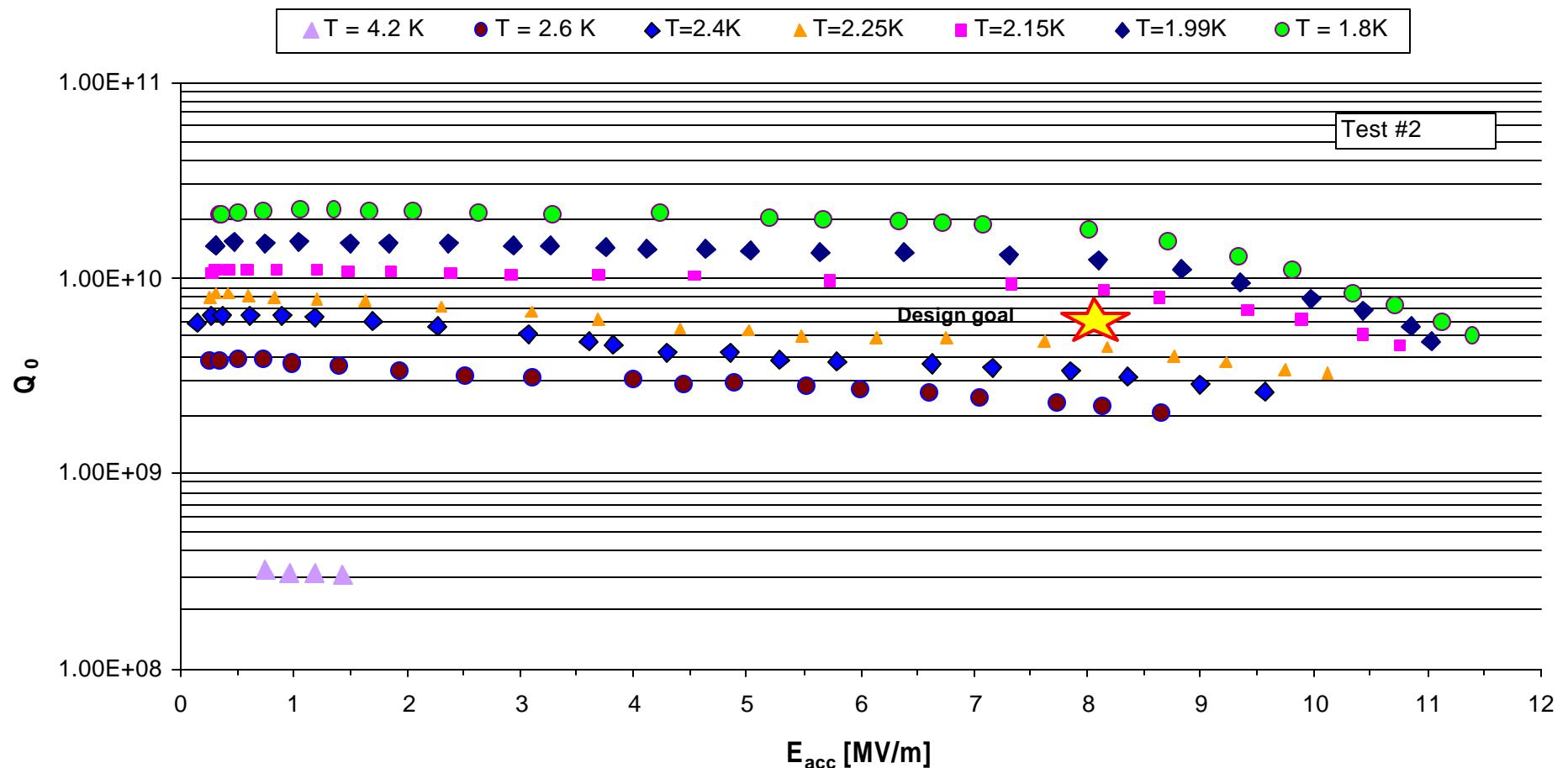
# Cavity Remaining Duration



April 8, 2003

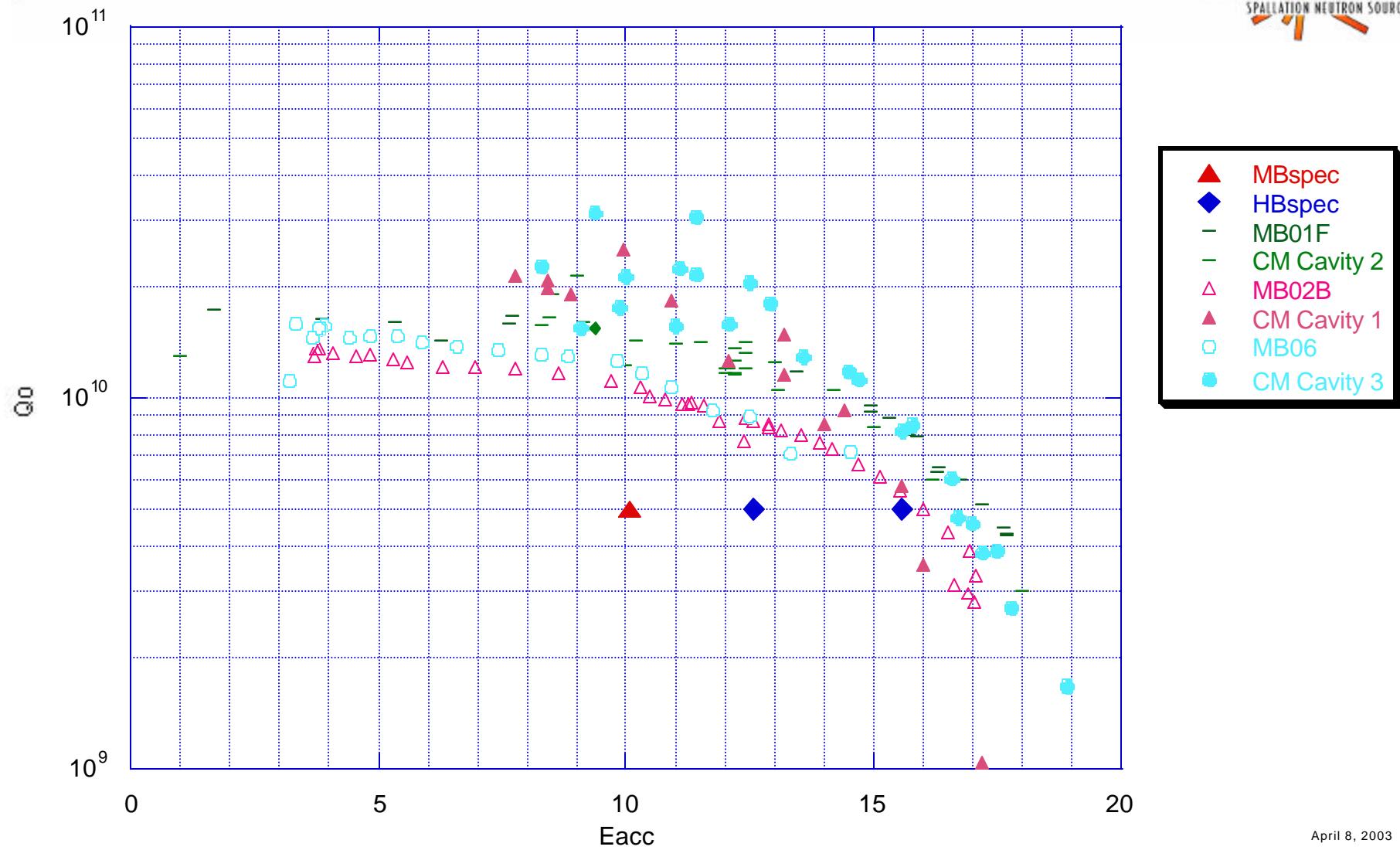
# 6 cells cavity RIA6-1 b=0.47

## Qo vs. Eacc



April 8, 2003

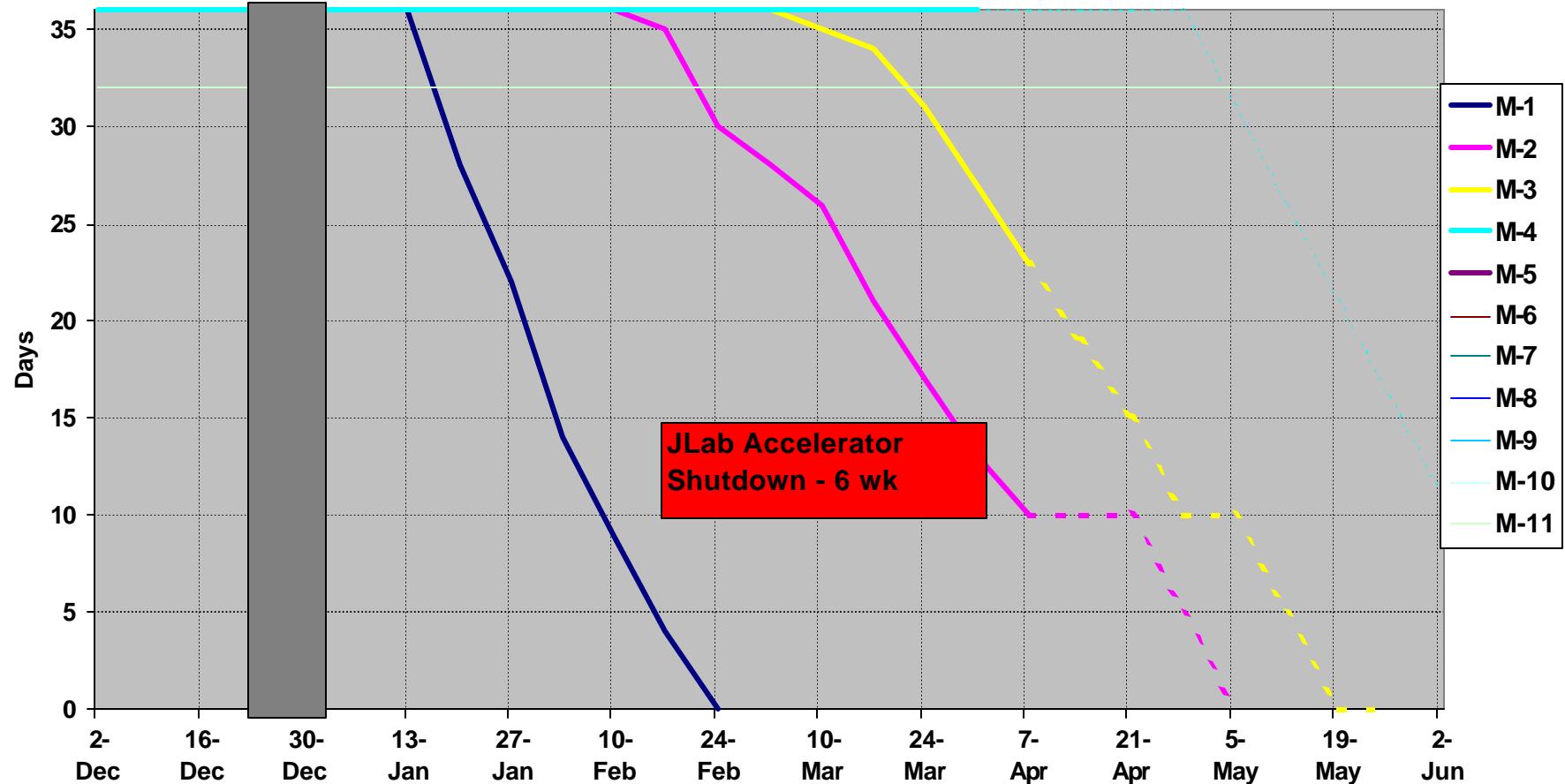
# M1 Cryomodule Performance 4/1/03



April 8, 2003

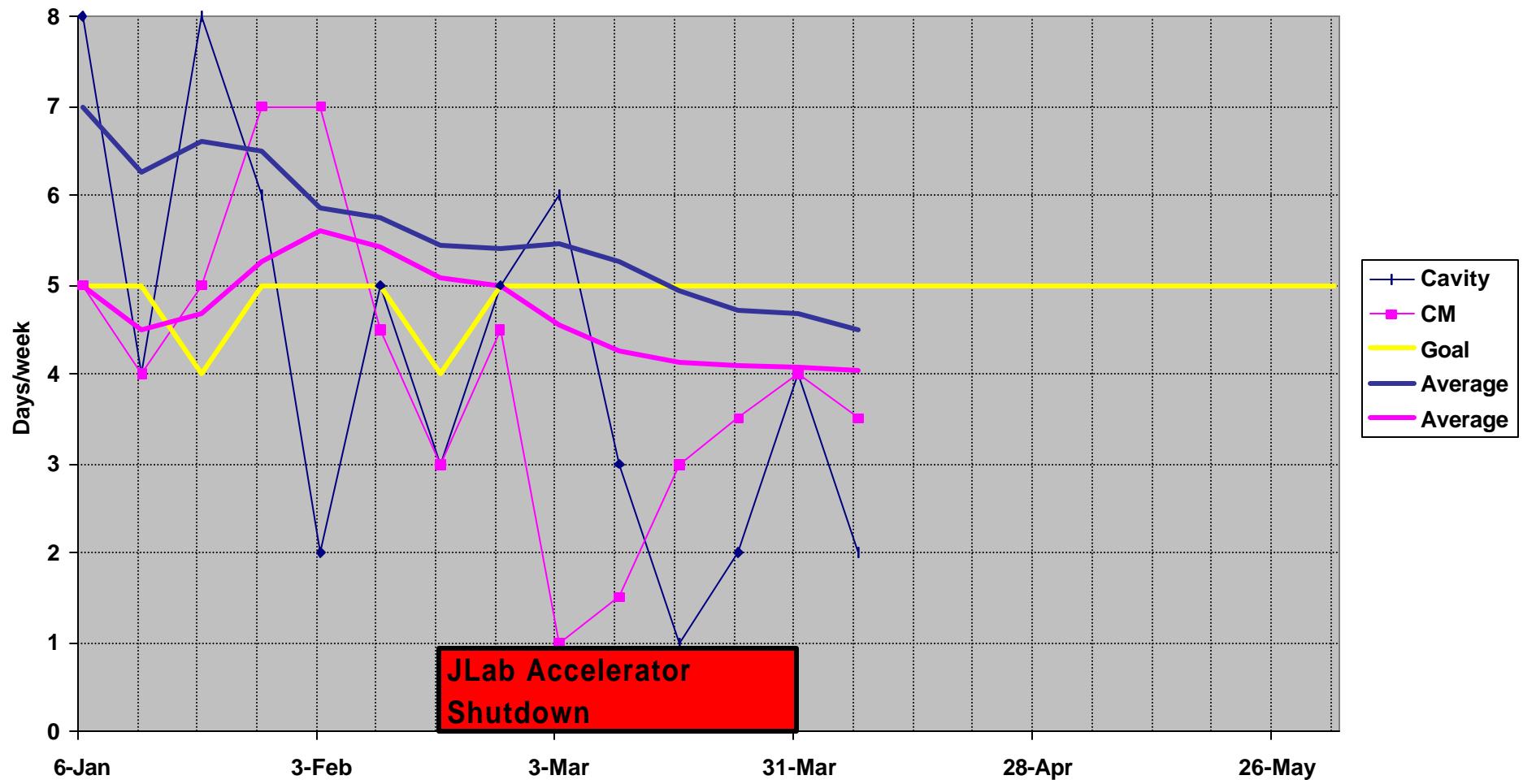
SNS Linac

# CM Remaining Duration



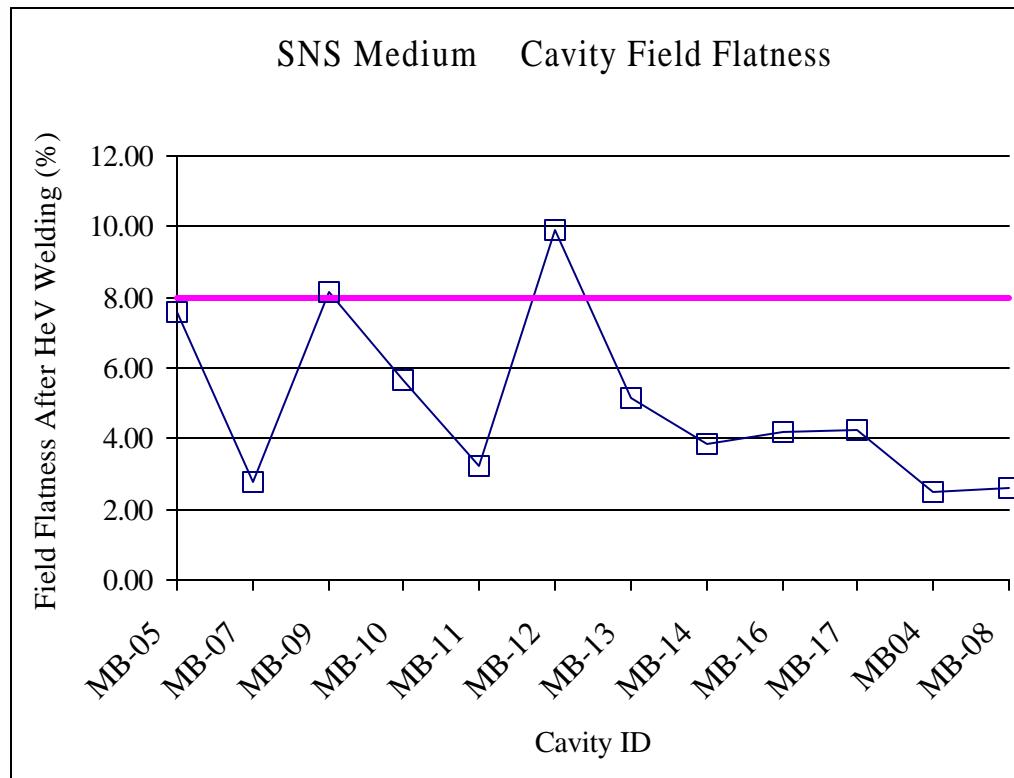
April 8, 2003

# MB Cavity & CM Progress



April 8, 2003

# Field Flatness

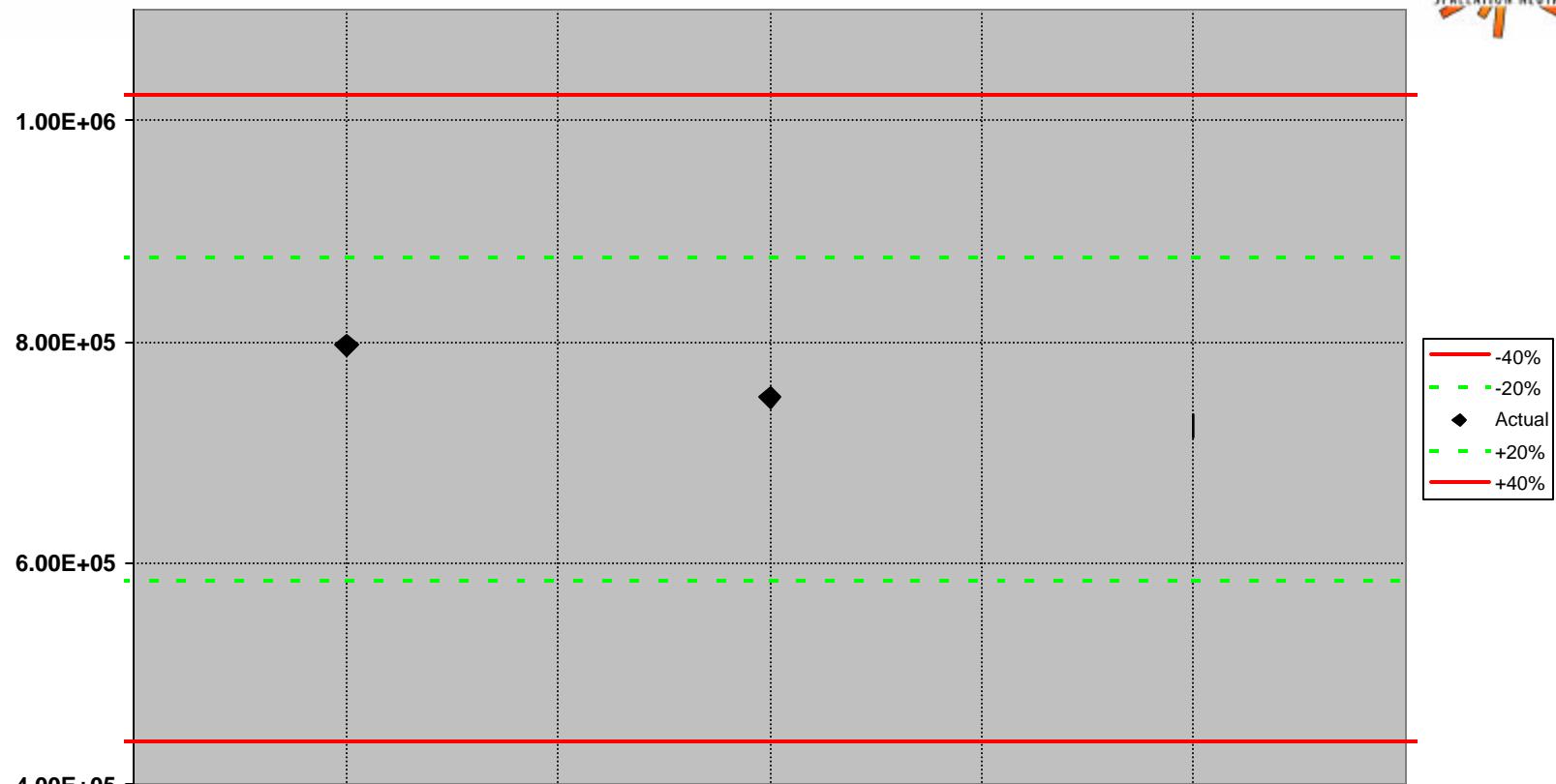


- Baseline requirement **≤ 8%**
- Actual **4.99%,  $s=2.4\%$  and decreasing**

Note: Excludes prototype and M1 CM

April 8, 2003

# FPC $Q_{\text{ext}}$



- $Q_{\text{ext}} = 7.97, 7.50, \text{ & } 7.23 \cdot 10^5$
- Baseline Parameter  $Q_{\text{ext}} = 7.3 \cdot 10^5 \pm 20\%$
- With matching section  $Q_{\text{ext}} = 7.3 \cdot 10^5 \pm 40\%$

April 8, 2003

# HOM Q<sub>ext</sub>

---



- Baseline parameter  $>10^{12}$
- Real requirement few  $\bullet 10^{10}$
- $Q_{\text{ext}}$  (field probe) =  $1.79 \bullet 10^{12}$        $\sigma = 4.5 \bullet 10^{12}$
- $Q_{\text{ext}}$  (FPC) =                   $4.47 \bullet 10^{10}$        $\sigma = 4.5 \bullet 10^{10}$
- Problems
  - HOM at FPC end very difficult to tune
  - Both very pressure sensitive
- Action Plan
  - Add TESLA style tuning bracket
  - Submit PCR to reduce difference between baseline and need

April 8, 2003

# TESLA HOM Bracket



April 8, 2003